

## **Immersive Virtual Environment Technology (IVET) Summary of Presentation and Discussion**

1. Because it has not yet been used in any courtroom, immersive virtual environment technology (IVET) can be used to study technology diffusion in the courts. It seems inevitable that IVET will be offered as evidence at trial, as its use becomes more common in other venues. People trying to use IVET in the courtroom will face many of the same issues faced by people who sought to introduce animations and simulations (and before that, photographs, audio-tapes, and videotapes) into the courtroom. Specifically, how should the IVET exhibit be authenticated and how should its probative value be balanced against possible prejudicial effects. More practically, what limits or constraints on the use of the technology are needed to make it acceptable to the courts? A major reservation about the use of animations and simulations is that jurors take them as representations of fact, not as a party's theory of the case, a reservation that judges and opposing parties are also likely to have about IVET exhibits. A case study of how IVET is handled by the courts would provide insight into how the courts deal with emerging technologies.
2. Issues surrounding the use of IVET are related to those covered by each of the other conference working groups, perhaps most related to those covered by the working group on animations and simulations. In addition, they are related to the issues considered by the working group on evidence presentation systems (within the virtual environment, jurors can handle objects offered as evidence), on videoconferencing (individuals wearing headsets can "meet" in a virtual location), and on recording events in the courtroom (a complete recording of the proceedings can be produced in a virtual environment).
3. Some general considerations with respect to IVET exhibits are:
  - How does the persuasive and prejudicial effect of evidence presented by immersive virtual environment technology vary as a function of **behavioral realism** (the degree to which virtual humans and other objects behave as they would in the physical world) and the judge's, jurors', witnesses' **sense of presence** (social presence: degree to which one senses that he or she is in the presence of, and interacting with, other veritable human beings; personal presence: degree to which one senses he or she exists within the virtual environment; environmental presence: degree to which the environment is responsive to perturbations of the user)? How do behavioral realism and sense of presence affect the acceptance and evaluation of IVET exhibits by the courts, the attorneys, parties, and witnesses?
  - What channels of communication (e.g., audio, video, tactile) need to be virtual to achieve the purpose for which you are using IVET?
  - How do/should cyber/simulator sickness and the sense of unreality associated with IVET exhibits affect judicial decisions about their

admissibility? How do these things affect trial participants and the judgments and decisions that they make about the exhibit and the issues for which it is introduced at trial?

- How would the use of IVET exhibits change the role of the jury?
4. The use of IVET in trials may alter the role of the jury, and the basic tenet that the person or persons who judge the facts are not those who have experienced the wrong. If jurors are submersed into the factual issues they are asked to decide, do they loose their sense of objectivity?

To what degree, however, are jurors actually objective? Does the use of IVET exhibits do anything more than dispel the myth that jurors are objective decision-makers? Is resistance to the technology really an effort to protect the illusion of objectivity? Is a more active approach to jury decision-making a wave of the future (consider recent changes in some courts that allow jurors to take notes, confer with one another as the trial proceeds, and ask questions of witnesses)? An attorney's job is to bring the case alive for the jurors (i.e., make it real for them) and have them adopt the story of the facts that favors the attorney's client; perhaps IVET exhibits are just one more tool (albeit a powerful one) in the attorney's arsenal of tools to so persuade the jury.

Unlike early "self-informing" juries, today's juries are not witnesses to the issues in dispute and are instructed not to visit the crime or accident scene or to collect evidence on their own. Viewing of crime/accident scenes still happens but in a more constrained way. What motivated the changes in the perspectives jurors are assumed and instructed to take (e.g., increased urbanity decreased the likelihood that jurors who witnessed the events could be seated; the concern that crucial aspects of the crime or accident scene would be changed between the time of the crime/accident and the visit by the juror; the desire for all jurors to "witness" the same evidence; the concern that the judge would not know what jurors had seen)? The reasons on-scene visits are now objectionable can be addressed with IVET (there's no problem transporting the jury and other trial participants, can experience the scene as a group; judge and attorneys know what jurors have seen).

In addition, the social dynamic among jurors may be altered, if each juror individually experiences the virtual environment (although the technology can allow each juror to "see" the others' experience). Consider, however, whether collective experience has to be an integral aspect of the jury system; the jury procedures of some other countries do not promote this. In Argentina, for example, the jury is composed on an uneven number of jurors, do not deliberate, and vote independently and anonymously, with the majority prevailing.

5. How might immersive virtual environment technology be used in trials and other court proceedings? Simulations and animations are a forerunner of IVET exhibits; look to the purposes they serve.
  - As evidence at trial, for example, it could be used to allow jurors to “virtually” walk through a crime or accident scene, to demonstrate how threatening a given person or situation might have been to a defendant claiming self-defense; to provide a first hand sense to jurors of the fear or other emotional distress experienced by a plaintiff; or to let jurors experience “first-hand” environmental pollution allegedly caused by a defendant. It could be used in the plaintiff’s/prosecutor’s or defendant’s case in chief, or could be used by either party to cross examine an opposing witness.
  - IVET could facilitate ways of resolving disputes in a more collaborative manner. If both sides have a better sense of the other’s strengths and weaknesses because of the technology, they may be more inclined to settle before going to trial.
  - IVET can be used for other legal and court-related purposes, including witness preparation (i.e., allowing the attorney to see things from the witness’s point of view can help the attorney describe the situation more completely, and can help ensure that the witness is prepared to answer questions about every possible angle of the scenario), lineups, and “walk-throughs” of courtrooms still under design and construction.
6. IVET can also be a valuable research tool. Comparing an IVET jury trial and a mock physical jury trial could inform us about the dynamics of each, and how they compare to “real” physical trials. We already know that the mock jury research is to some extent not generalizable because it is not realistic — the extent to which technology can make research more realistic is exciting.
7. The difference between photographic realism and behavioral realism is important with respect to IVET. Achieving photographic realism is relatively easy, and will become easier as the technology improves (i.e., a perfect representation of a person – an avatar - can be created). However, behavioral realism is more difficult, and arguably more important; it involves such things as facial expressions and eye tracking. Research into how behaviorally real something has to be before it is credible will contribute to the debate about the use of IVETs in the courtroom.